

FLORIDA HIGHWAYS



State Road No. 2 Among the Hills in Marion County.

Vol. III

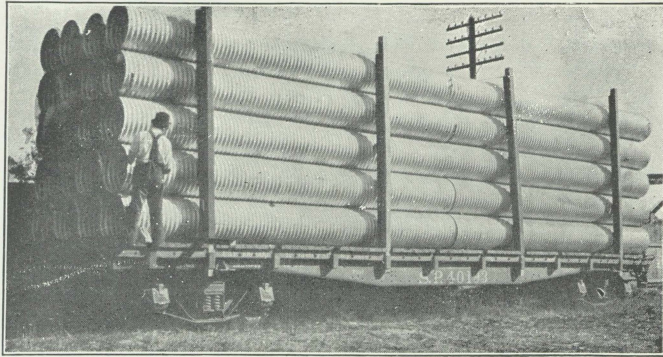
AUGUST, 1926

No. 8

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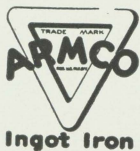
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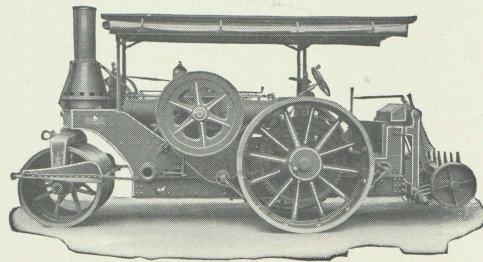
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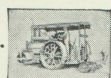
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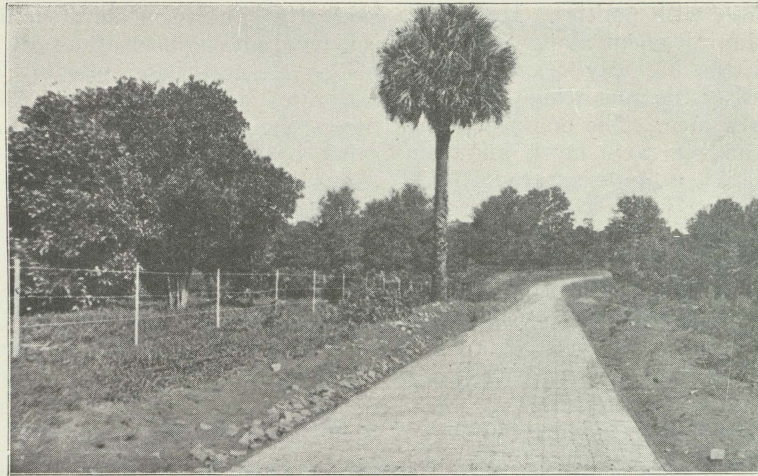


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FLORIDA HIGHWAYS



Vol. III

AUGUST, 1926

No. 8

Keeping A Highway Organization

Suggestions for Bettering Conditions of Highway Engineers Given in the Professional Engineer

By R. H. HARRISON

MUCH time has recently been spent in inducing engineering graduates to enter the highway engineering field; a great deal less consideration has been given to satisfying them and keeping them after they have entered the field. In the spirit of the times, the reader's first thought is probably that this is a plea for more money for engineers. In a way it is, but anyone who comes in contact with enough engineers to know them as a group, knows that the money question is not held by this group as a primary question in life. However, it should be listed among the things which hold, and a salary which will compare favorably with the salaries of men of equal education and abilities in the other professions, should be paid.

What, then are the points that after a very short time influence the young engineer to discontinue highway engineering to take up contracting, salesmanship, life insurance, or the like? The writer believes that in a great majority of cases there are two causes; first, unsatisfactory living conditions and second, thwarted ambition.

Living Conditions

Living conditions for the engineer have always been rather irregular. Practically everyone of the older engineers can sit down and tell heart-rending experiences of camp life, moving, losing jobs, and many will say that the younger generation should go through the mill. But the question is—will it? Things have changed. Comparatively few engineers were needed in those days and the men in the game were for the most part the adventurous, roving kind; today so many engineers are needed that this kind will not meet the demand. Today the young engineer is told to move to a certain town. Every house, almost every room, in the town is filled; this is the condition of nearly every village, town, or city in the country. If he moves, all home life is swept aside; if he leaves his family, there at once comes the thought that absence from home must have some compensation. There is very little trouble in finding a salesmanship job paying double his former salary. There are many engineers today living with their families under almost squalid conditions, and others who do not get to see their families more than twice a month; the paral-

level is that in these same organizations there are numbers of them resigning every year.

What's Ahead

Every worker must see something ahead. Highway engineering is a rather precarious profession at its best, due to the public nature of its duties and thus its admixture, more or less, with politics. However, each year gives hope of improvement along this line, and it seems queer that the highway organizations themselves are in many cases the ones which dim the ambitions of their younger men. The engineer cannot go along for years on the same level, knowing there is nothing a little higher up to which he may attain. If he is a good man, one worth keeping, he will get out where he can climb, or at least where there is a chance. If his eyes are on the level and not upward, he will lose his spirit.

The highway field needs experienced men in all of its work from the top to the bottom, and if we are not to fail in the great work which we are carrying on during this decade and the one to follow, we must have these experienced men. They should be in every civic organization having to do with highway construction or maintenance. How are we going to keep these men who are leaving? How are we going to remedy the conditions which are causing them to leave in many places? The writer believes that organization is the answer. Through organization, subdivide the work to be done so that there will be more permanence to positions, and hence more permanence to living conditions, and, of most importance, provide stepping stones by which the men can advance as they improve.

The State Highway Organization

Highway organization in all civic divisions may be built in essentially the same way, but the one which controls to a great extent the highway programs of today is the state highway organization, as it not only supervises a great quantity of the work done, but exerts an influence on all other highway organizations, both by its contact and by its feeding men into the latter. Therefore, it seems fitting that it should be taken as an example to show how a good organization will maintain itself.

The head of the state organization may be either one man or a body of men and this head necessarily becomes the link between the civic side of road building and the engineering side. It may well be occupied by an engineer, but not necessarily so, as strictly engineering features should not come within the province of its duties. The position should be considered distinct from the engineering organization as it is rarely filled by promotion.

The chief engineer should be the next in line with absolute authority over all engineering features connected with the construction and maintenance of all roads and bridges which the state handles. There is a reason for this directly in line with this article, apart from the good effect on the organization through coordination of all the work. This is, that it gives a central authority who is empowered to shift a man to the work for which he is best fitted—road construction, bridge construction, or maintenance. Without this combining of the various types of work

throughout the organization in a central authority over all, many men who are excellent on one class of work are buried in a class which they dislike and for which they have no aptitude.

Under the chief engineer there should be a central organization and a field organization, the latter reporting to him through the central organization. The central organization staff should be composed of the construction engineer of design, maintenance engineer, bridge engineer, and possibly one other engineer in charge of special functions. These men should be in direct charge of their work, ranking practically the same, but on a distinctly higher level than the field men for reasons which will be explained later. In an organization with a large program ahead, it will, in many cases, be necessary to have primary assistants to these men, and in this case these assistants should be slightly higher than the field men. The remainder of the office organization should be stepped down to provide for advancement to some extent.

The group of engineers in the main office is generally small and the men do not have the problems confronting them that the field engineers have. They are usually settled, take a part in local interests, and, last but not least, are under the direct eye of their superiors who reward good work by advancement.

The Field Organization

The crux of the matter of keeping the younger engineer and building an organization which will supply itself from its own ranks is the condition of the field force. Is it in touch with the central office? Is the central office in touch with it? Do they understand each other's problems? In many cases they do not, and the reason is poor organization. After careful study of a number of systems, the writer believes that the so-called district field organization is the only system which even approaches the solution of the problems encountered. The district is the molding place for the heads of the central organization. The district engineer is the chief engineer of his district and is designing engineer, construction engineer, bridge engineer and maintenance engineer for his district. He is getting the experience which will make him available for one of these positions or for that of assistant to one of them in the central organization, and these latter positions must be attractive enough to be desired by a district engineer, for a district engineer who does not care to go further up is a drag. But the greatest experience obtained by the man is executive experience. He learns to control men, to write letters, to make decisions, to look after paper work, to be tactful in his dealings with public officials and with the people—an excellent training for his future greater responsibilities.

However, the responsibilities of the district engineer are far from small. In fact, the greatest drawback to this system is the giving of too much work and too great a responsibility. But this may be remedied, first by making slightly smaller districts than many states have had in the past, and second, by a better contact between the main office and the field forces through more numerous inspections by the staff engineers.

All engineering features which the chief engineer handles should again converge in the district engi-



F. A. Project 38—Escambia Bridge. View of 200-ft. Steel Swing Span. This bridge was opened to traffic July 8th and stretches three and one-half miles across Escambia Bay.

neer. The good obtained by this is that it carries out the power of the chief engineer to shift his men to the best advantage, and it is through the district engineer primarily that this power functions.

In the district organization the various phases of highway work are again divided and the district engineer should have several assistants—a road construction assistant, a maintenance assistant, and a bridge assistant. Their duties will be quite well defined, but the fact that they are thrown together, talk over each other's problems, and often make an inspection for one of the other assistants, broaden these men to such an extent that they are capable of taking over the position of district engineer when the chance comes. They will come in contact with some of the executive work which will be very helpful in higher positions.

The District Office

This nucleus in the district office is in much better shape than would be the case without a district organization. It is necessary for the engineer to be away from home part of the time, but in any case there is a home and an all-year home—not one to be broken up with the passing of each season. He is better able to give his thought to his work. He is able to keep in touch with local matters, to take his place in civic affairs and to feel that he is worth while. He sees ahead of him a place to which he may advance by

perseverance and knows there is some one higher who keeps in touch with his work.

The problem of the man on the work, the resident engineer or the maintenance superintendent, is the greatest, but it does not seem so great to him if he can see something ahead, a position of assistant district engineer where he will be able to settle down. The discouraging thing for the young engineer is not to be able to see a stopping place in this continual moving, generally at his own expense.

But much may be done to make life easier for him while he is still in his present position. A well chosen location will often allow his remaining in one place for two or more seasons, and the choosing of locations and placing of engineers may well be given considerable thought by the district engineers.

Inspectors and members of survey parties cannot be classed with other engineers, generally speaking. They must move, at least within the borders of the district, and quite often about the state. Fortunately, a great majority in these classes are single and are glad to change locations often. Furthermore, it is good for the organization for them to get familiar with conditions in more than one locality. They will profit greatly by the things they come in contact with in the various communities, and will be better

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Florida Highways

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B. A. Meginniss, Attorney for the Department,
Editor and Business Manager

Volume III August, 1926 Number 8



The Supreme Court Decision

The Supreme Court of Florida has held that Section 2 of Chapter 10118, Laws of Florida, 1925, is unconstitutional and inoperative. This section provided that upon the institution of a proceeding for condemnation the State Road Department should be permitted to enter upon and construct the contemplated road or bridge, pending such condemnation, upon depositing in the registry of the Court double the amount of the value of the property sought to be taken as fixed by the Circuit Judge based upon the affidavits of three disinterested freeholders owning lands in the vicinity of that sought to be taken. The cases in which this holding was made were brought up from Brevard County by writ of certiorari to test the validity of this section pursuant to orders made by the Circuit Judge under the provisions of the section. The result was as stated.

The practical effect of the decision is to place the Department back where it was before the enactment of the statute, insofar as gaining immediate possession of the property sought is concerned. The Court did not, as one would infer from the press accounts of the decision, declare the statute void in toto; on the contrary, it was specifically held that the act is valid except as to section two above referred to. That is to say, the provisions of the act, which regulate the procedure in such cases, and which give to the Counties the authority to secure rights of way for the State Road Department for State road purposes are held valid and effectual. This settles the question, sometimes raised, of the authority of a county to furnish a right of way for a State road.

The purpose of the section which has been declared inoperative was obviously to avoid delays incident to condemnation suits and at the same time secure to the property owner just compensation. It has been pointed out that the provisions of the law as they existed prior to this enactment contemplated a speedy trial in such causes, since it is specifically provided that the Circuit Judge shall impanel a jury as soon after the return day of the writ as practicable to try what compensation the property owner shall receive and that such causes may be tried in term time or in vacation. This view, however, takes no thought of the fact that the notice required shall be not less than thirty days, and that the interposition of defenses which are frivolous or without merit, is not infrequent. To obviate these delays and at the same time to amply and adequately secure the property owner, Section 2 of the Act was framed. It conflicts with organic law, in the opinion of the Supreme Court, and that, of course, is the end of it.

The Department, with the co-operation of the Counties, will continue to secure rights of way for State roads as expeditiously as possible, and Governor Martin has assured the Chairman that no delay will

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Chairman's Column



Make Our Roads Safe

The main or trunk line roads, as the name implies, carry the principal traffic, both intra and extra-state, and usually the motorist has in mind before starting on his journey a fixed destination which he wishes to reach with the least possible delay and in safety. This being true he should not be forced to motor through the main congested thoroughfare of towns and cities along the route. Our principal streets are entirely too crowded and congested for satisfactory and safe driving and when the traffic of one of the State's through roads is poured into one to the point of hazard a mistake has been made. Our trunk line roads should not, therefore, be routed along a principal or busy street of our towns and cities. If the

motorist wishes to visit the business sections he could easily find a street that leads "down town."

Every road built for motor-driven vehicles should be as free as possible from sharp, dangerous curves, particularly is this true of State roads which carry our heavy traffic. A sharp curve is positively dangerous and should not be tolerated. Every railroad crossing should be eliminated that now exists on any one of our main roads and avoided at whatever cost in the laying out of new ones. New York State is expending millions of dollars in the elimination of railroad crossings and our own State Road Department has eliminated fifty or more already.

Our lawmakers should consider enactment of uni-

(Turn to page 21.)

Contracts Awarded by State Road Department January 1, 1926— August 13, 1926

Contractor	Project No.	County	Roads Length Miles	Bridges Length Feet	Contract Plus 10%	Type
Noonan-Lawrence	51	Escambia	6.25	....	\$ 206,575.89	Conc.
J. S. Walton & Co.....	648-B	Hardee .....	....	615	83,228.09	Conc.-Tmbr.
Chas. F. Wilmore.....	641-A	Palm Beach	11.36	....	86,081.38	Grade
Gillis Const. Co.....	644-A	Wakulla	8.49	....	47,367.49	Grade
L. M. Gray.....	617-618	Alachua	16.06	....	248,123.10	R. Base
Montgomery & Parker.....	633-B	Gadsden .....	....	240	39,591.47	Conc. Bridge
Peterson & Earnhart.....	672-B	Leon .....	....	1950	197,377.45	Conc. Bridge
Concrete Steel Bridge Co...	641-B	Palm Beach .....	....	237	120,766.80	Conc. Bridge
Concrete Steel Bridge Co...	656	Palm Beach .....	....	727	222,200.60	Conc. Bridge
American Bascule Bridge Corp.	641-656	Palm Beach .....	....	120	63,573.40	Bascules
J. W. Hall.....	689	Alachua	1.67	....	10,599.42	Grade
H. E. Wolfe.....	562-A	Highlands	5.37	....	142,837.33	S. T.
C. A. Steed & Son.....	694-694-A	Martin-St. Lucie ...	8.48	....	61,599.45	C. G. & G.
Boone & Wester.....	693	St. Lucie	8.73	....	59,670.88	C. G. & G.
Duval Engr. & Contr. Co...	31	Hamilton	11.82	....	241,489.11	R. Base
F. S. Whitney.....	642	Putnam	10.18	....	210,025.00	R. Base
Wm. P. McDonald.....	675	Polk	5.16	....	256,969.88	S. A.
Noonan-Lawrence	500-A	Bay	9.65	....	334,691.65	Conc.
R. H. H. Blackwell.....	693	St. Lucie .....	....	160	80,466.96	Conc.
C. A. Steed & Son.....	694-694-A	Martin-St. Lucie ...	....	327	125,796.52	Conc.
W. P. McDonald.....	648	Hardee	1.00	....	31,363.20	R. B. S. T.
Gilbert & Hadsock.....	676-A	Levy	9.95	....	48,875.58	C. G. & G.
McLeod Const. Co.....	676-B	Levy	14.39	....	135,259.30	C. G. & G.
Peterson & Earnhart.....	673	Gadsden .....	....	20	10,727.20	Conc.
Atlantic Bridge Co.....	38	Escambia .....	....	....	28,260.98	Surface
Lake Worth Const. Co.....	543	Seminole	14.2	....	109,759.62	C. G. & G.
A. Bentley & Son Co.....	621-C	Okaloosa .....	....	1363	147,295.80	Conc.
A. Bentley & Son Co.....	621-B	Okaloosa .....	....	1568	157,361.60	Conc.
E. F. Powers Const. Co.....	668	Brevard	13.45	....	119,128.58	C. G. & G.
E. F. Powers Const. Co.....	564-C	Charlotte	3.93	....	42,264.98	C. G. & G.
L. M. Gray.....	595	Volusia	6.43	....	122,022.17	R. Base
B. Booth & Co.....	53-A	Lake	7.09	....	60,252.65	C. G. & G.
H. E. Wolfe.....	589	Charlotte	8.16	....	174,725.21	R. Base
W. J. Bryson Paving Co...	614	Sarasota	17.08	....	129,895.29	C. G. & G.
Atlantic Bridge Co.....	634-B	Jackson .....	....	456	70,707.86	Conc.
Duval Engr. & Contr. Co...	504	Columbia	9.41	....	178,551.36	R. Base
R. C. Huffman Const. Co...	669-C	Dade	12.00	....	311,027.69	Grading
L. B. McLeod Const. Co.....	682	Citrus	6.45	....	106,241.56	R. B.
Wilson Pipe Co.....	564-C	Charlotte .....	....	134	43,123.52	Conc. and Steel
M. C. Winterburn, Inc.....	659	Clay	13.27	....	133,334.45	C. G. & G.
H. E. Wolfe.....	655	Highlands	5.00	....	105,874.01	R. Base
Broadbent Const. Co.....	564-B	Charlotte	9.73	....	190,330.76	R. Base
Thompson & Moseley.....	589	Charlotte	6.66	....	10,916.86	Conc.
Wm. P. McDonald Const. Co.	663	Citrus	8.03	....	138,345.79	R. Base
Peterson & Earnhart.....	48-B	St. Johns .....	....	456	81,700.91	Conc. Bridge
F. M. Stuart & Co.....	49-B	Flagler .....	....	200	62,967.30	Conc. Bridge
Baker & Foulks.....	533	Suwannee	13.47	....	249,410.72	R. Base
Alexander, Ramsey & Kerr	669-V	Collier	11.91	....	382,631.70	C. G. & G.
Alexander, Ramsey & Kerr	669-X	Collier	9.39	....	104,164.50	C. G. & G.
Johnson, Drake & Piper....	565	Madison	15.99	....	464,271.36	Conc.
Totals.....			313.58	8,573	\$6,737,610.13	

Motor Traffic Too Much for Ancient Bridges

WHEN the picturesque old stone bridges of Europe were built, perhaps the heaviest burdens the prophetic eye could foresee for them were knights in armour, or hay wagons, or stage-coaches. Evidently their builders never dreamed of swift motor-cars, or of traction engines dragging trains of heavy laden trucks. And now the ancient

bridges are proving unequal to the modern strain, giving rise to a situation alarming to archeologists and lovers of beauty. In England the Government has taken cognizance of this crisis, and a London special correspondent of The Christian Science Monitor writes:

The British Minister of Transport deserves and

ought to receive the thanks of every lover of the countryside for his hint to local authorities of the national importance of preserving ancient bridges and of insuring that artistic ability of a high order is displayed in the building of new ones. Many of the English bridges possess features of archeological interest. Some of them show how their builders made fitting use of local materials; others display the uncommon ingenuity of the Middle Ages in its attempt to "drive the road and bridge the ford" to the uttermost ends of the country.

The oldest bridges in the country, leaving out of account such prehistoric structures as the "Clapper bridges" on Dartmoor, are probably those erected for the use of pack-horses, which conveyed merchandise from one district to another. One of these may still be seen at Hampton-on-Arden in Shakespeareland, close to the London Midland and Scottish Railway, as it runs from Coventry to Birmingham. Another was at Bradford-on-Avon, but when wains took the place of pack-horses, and the town became ultra-prosperous, the clothiers of Bradford built, in the time of James I, a second bridge alongside the first.

So long as the traffic of England was confined to horses and wagons and stagecoaches; the ancient bridges sufficed. They might turn at sharp angles from the road, but the skilful Jehu knew exactly how to negotiate the awkward corner; they might rise so high in the middle that the man on one side could not see what was coming over from the other side, but traffic was comparatively slow and the rattle of the wheels was sufficient to give warning of approaching traffic.

But the motor-car has brought about the demand that all bridges with a high pitch, all bridges that are by any means narrow, and all bridges which involve a sharp turn from the highway across a river or stream shall be abolished.

Good counsel, maybe, for high pitch, narrowness, or a sharp turn may mean danger to the ever-increasing army of travelers by motor-car, which now throngs the roads. But the point to remember is the point made by the Minister of Transport that beauty must be observed in replacing an old bridge or building a new one.

England has suffered too many losses in this respect to desire to have any more, we are told. For example:

Exeter once had a wonderful stone bridge; so too had Guildford; but these have made way for uglier structures. Old Trent Bridge has been gone these fifty years, to be replaced by an iron structure. The iron hand fell heavily on Copton Bridge at Stratford-on-Avon, one which Shakespeare must have walked many times; and fell also on the ancient bridge at Bideford, which has only recently been rescued from ugliness.

Other ancient bridges have been threatened, and threatened unnecessarily. The 300-year-old bridge which crosses the Greta at Keswick, part of the poetry of the Crosthwaite Vale, is one of them, threatened because it is narrow and its hump is so pronounced that the motorist can not see any road in front of the car until he is almost on top of the rise. The old bridge at Carnarvon is the subject of struggle between Welsh antiquaries, who say that it dates from the

Roman period, and Welsh utilitarians, who declare it to be younger by several centuries and in the present year of grace a bad spot for travelers. The bridge at Rowsley in Derbyshire is another example of the need for not allowing the demands of modern traffic to be utterly destructive of grace and beauty. Then we have the old stone bridge at Berwick-on-Tweed, 1,164 feet long and running on fifteen arches. It was quite adequate for the traffic in olden days, but now it is quite unable to cope with the enormous number of vehicles passing between England and Scotland. Is it to be rebuilt or is a new bridge to be thrown across the Tweed?

If one might paraphrase a famous line of Keats, one might say that "a bridge of beauty is a joy forever." There are dozens of them in old England today, each of them a monument of the historic past, each of them liable to have its individuality destroyed under the imperious demand of the motorist for straight and level roads. The scathing irony of the Earl of Rosebery saved the Auld Brig o' Ayr when it was threatened with destruction a few years ago; the magic name of Shakespeare, altho it was unable to prevent an ugly iron footway being hung on the side of Clopton Bridge 100 years ago, has now been sufficiently powerful to prevent the demolition of the ancient structure. What is desirable now is that some influence as powerful shall be used to cherish every one of our old bridges, and if we must rebuild to be careful that they are rebuilt as things of beauty to be a joy forever.—Literary Digest.

CORRECTING OUR MISTAKES

The mistake that was made in the early days of road building in California—making the highways too narrow—is being corrected now at great expense. Highways are being widened in many places to meet the demands of constantly increasing and badly congested traffic. In construction of new roads, ample allowance should be made for increased traffic, and the roads should be made wide—the wider the better. No danger of getting them too wide. The time is coming when every main thoroughfare in the state will have to be at least one hundred feet wide, or else there must be two fifty-foot highways paralleling each other, with one-way traffic. The phenomenal increase in the number of automotive vehicles in California foreshadows a period of traffic volume which roadways as they are today would not accommodate.

—Martinez (Cal.) Standard.

PINELLAS COUNTY'S ROAD SYSTEM

Through the courtesy of Mr. C. E. Burleson, County Engineer, we have been enabled to present in this issue and in the July issue, a number of views of the splendid roads of Pinellas County.

Some conception of the fine accomplishment of that county in the field of road construction can be gained from the views which appear on pages 11 and 18 of the present issue, and those which we presented in July.

It is always a pleasure to Florida Highways to set forth news and views of road construction in the various counties of the State, and it is hoped that we may receive other photographs and items of a similar nature.



F. A. Project 38—Escambia Bay Bridge showing fill and guard rail.

HOW TURKEY CONTROLS SPEEDING

L. A. Scipio, Dean of Engineering, Roberts College, Constantinople, Turkey, is a graduate of Purdue University, class of 1908. In a recent article in the "Purdue Alumnus" he describes certain Oriental customs. His description of the methods used to check motor vehicles speeding follows:

Automobiles have become quite numerous, the greater number of which are American made. New speed regulations have gone into force during the last three weeks, making seven miles the limit within the city. Traffic police are stationed at various places where the temptation to exceed the limit is greatest, and these are armed with a board some five feet long with 4-inch spikes. When a car is seen coming at rather lively pace the board is quickly placed in the road directly in front of the car. The law states that the board must be placed exactly four meters in front of the moving car. If the chauffeur succeeds in stopping before he comes to the nails, he is regarded as not to have been exceeding the limit. Also, his brakes are considered to be in good condition. More than one hundred chauffeurs have been arrested for exceeding the limit, many have been fined fifty pounds (about \$240), and quite a number have been given from twenty-five to fifty lashes in addition. These measures may seem a little drastic to the average American driver, but no one can deny that they are effective.—Badger Highways.

INCREASING HIGHWAY CAPACITY

Editorial in Western Highways Builder.

THE fancy persists in the minds of many that a satisfactory economic solution of the traffic congestion problem on public highways rests in the moving of vehicles at a much more rapid pace, as well as enlarging highway facilities. Highways, as presently constructed, are one-dimensional, their volumetric efficiency depending chiefly upon the width of the road surface. Manifestly, the first consideration in increasing this efficiency should take into account the time element. To put the proposition more explicitly, the number of vehicles that may be accommodated on any section of road in any given period is determined by the width of the road and the rate of speed at which the vehicles travel. Per contra, road capacity or volumetric efficiency, is restricted by one static factor, i. e., road width, and one mutable factor, i. e., vehicle speed.

All motor vehicle speed regulation is designed for safety; premised on the theory that a motor vehicle traveling at excessive speed is a menace to life and property. Time and experience, however, are creating a doubt as to the truth of this premise. Automobile casualties, the records demonstrate, occur from reckless driving, driving while intoxicated (remarkable as it may seem in this era of prohibition), driving while

fatigued, faulty motor cars and numerous other causes. Accidents directly attributable to excessive speed, as a matter of fact, are in the minority.

In view of the desirability of expediting motor vehicle flow and with the knowledge that this may be achieved most economically by revising speed limitations upward, it would seem that a penetrating and exhaustive research into the cause of motor vehicle accidents and their relation to speed, would be in order. Such an investigation could be conducted most profitably by the Highway Research Board, the Bureau of Public Roads or the American Association of State Highway Officials.

So long as motor truck transport is such an important phase of all highway travel, the minimum speed law plan advocated now and anon for the relief of congestion, is infeasible. But it is probable that maximum speed restrictions may safely be increased considerably without increasing, correspondingly, the casualty rate. Of this, however, only a comprehensive inquiry into accident causes in the past will determine.

Certainly if 30 or 35 miles an hour was considered a relatively safe rate of speed a decade ago, the development of automobile braking systems and control features, warrants a much higher rate of speed on and, ergo, a much greater volumetric efficiency, of our highways.

Teacher—"Take this sentence: 'Take the cow out of the lot.' What mood?"

Pupil—"The cow."—Denver Clarion.

AND THEY'RE ALL SATISFIED

An engineer was engaged to locate a proper outlet for a drainage ditch. He came to a road under which was built a new concrete culvert. To his amazement he beheld a culvert of new and strange design. His ready rule came forth, and he found the inlet end to measure four feet in diameter and the outlet end but two feet.

When he drove to town that afternoon he looked up the county surveyor and asked him the reason for the unusual culvert. The surveyor was an old fellow, and he replied, rather patronizingly:

"My boy, that culvert is an engineering work designed to meet local conditions and not plain theory. You see that road is on the township line, and the supervisors on the west side insisted on four feet as about the right size for their end, while the supervisors on the east claimed two feet was enough."—The Highway Magazine.

Deceived the Eye

A woman and her little daughter stopt to look at some live chickens that were running about in a drug store window on Huntington Avenue. The mother remarked:

"Those chickies were hatched in an incubator, dear."

"Why, mamma," said the child in surprise, "no one could tell them from real ones."—Boston Transcript.



F. A. Project 38—Escambia Bridge showing tender's house and steel span in distance.

Highway Research as Developed by the State Highway Departments

THE general public in making use of the highway little realizes that the quiet forces at work in laboratory, form the background for real knowledge in road construction.

States have found that information for one locality is not entirely applicable to another and constant investigations, widespread in their field, must be made in order that best results are obtained, time and funds considered.

This edition of American Highways is devoted exclusively to research work of various kinds now being carried on through the various State highway departments.

Recently the Bureau of Public Roads made a tabulation of the facilities of the State highway departments as to their work in the testing of road materials, and they report as follows:

"Forty-five of the 48 States have now regularly designated official testing laboratories, 33 of which are located in buildings entirely apart from any other institution whatever. Twelve laboratories are operated in connection with educational institutions—in most cases State universities—and either use the university equipment or use state-owned equipment housed in university quarters. These laboratories employed a total of over 400 men on testing work during the season of 1925, and tested upward of 260,000 individual samples of road materials.

"In 1917, a short time after the passage of the first Federal aid road act, there were only 12 State highway laboratories in existence. In no case has a State, having once established a highway testing laboratory of its own, subsequently abandoned it.

"The majority of the laboratories are equipped to make complete tests of all the most commonly used road materials, including bituminous materials, bituminous mixtures, cement, concrete rock, sand and gravel, culvert pipe, etc. A number of the laboratories have also quite recently installed equipment for making tests on such materials as paint, reinforcing steel etc. In general, it would seem that, in so far as laboratory facilities are concerned, the States are in excellent shape for the coming season."

In addition to a rather extensive description of the research work in a number of the states, it should be noted that a large number of other states are doing research work of great value, but we have not been able to secure a full description of their activities.

Along with laboratory and field observations, quite extensive traffic census has been made in a large number of the states. This is positively essential in determining the type of construction that should be used in the various sections of the country.

Delaware is engaged in research to determine the value in concrete of definite sands and stone.

West Virginia is working on gravel and sand mix using tars, asphaltic cements and emulsions in a cold mix for base course and top construction.

Maine is devoting its entire time this year to a study

of the reliability of Maine natural sands for concrete construction work as the great problem in Maine is that native sands are of granite origin.

South Carolina is making a study of the effect of sea water on reinforced concrete and vitrified clay pipe and specimens are being placed between low and high tide at Charleston. Also, fifty miles of experimental roads to determine bituminous treatment of earth types, are being observed.

Oklahoma is devoting its time to a study of various brands of cement and asphaltic filler for pavement expansion joints and brick filler.

Oregon has been carrying on experiments and investigations of various surface treatments for waterproofing concrete in structures, also to develop methods of testing clay to determine suitability for use as a binder in rock surfacing. Efforts are also being made to find a carpet coat of asphalt in screenings for wooden bridge decks.—American Highways.

MARY HAD A LITTLE LAMB

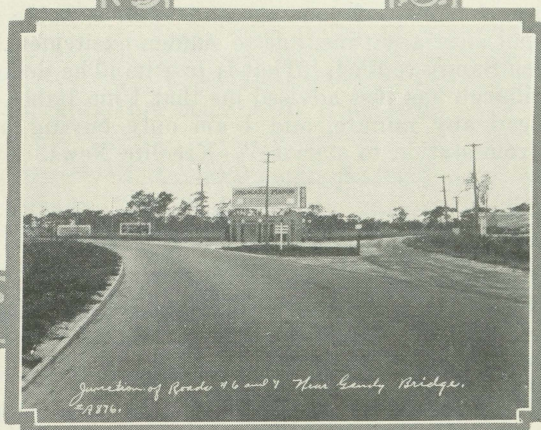
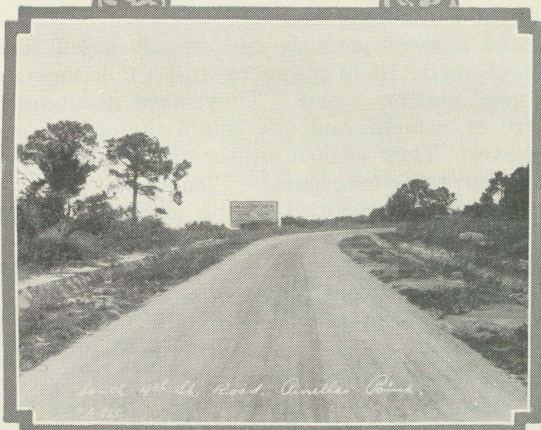
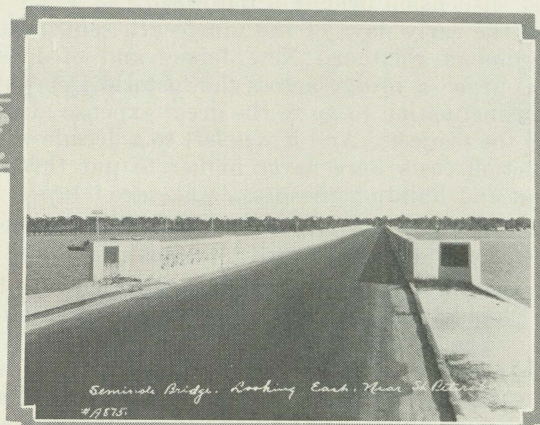
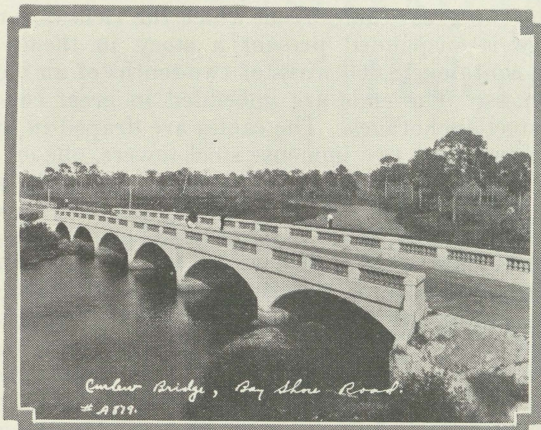
Mary had a little lamb,
(At the night club),
But she had two cocktails first,
And then some relishes
And some soup
And some sauterne before the fish,
And then a highball.
And then came the lamb
With champagne
And vegetables
And a salad
And some sherry,
Followed by dessert
And benedictine
And cognac with her coffee.
After which she has some highballs between
dances
And a few shots out of a pocket flask
On the way home.—Exchange.

INDIA ASKS FOR INFORMATION ON FINANCING OF HIGHWAYS

Information on financing highway systems is desired in India, says a mail report to the Department of Commerce. The Transportation Division of the Department of Commerce announces it will be glad to forward any material received.

The Secretary of the Motor Trades Association, representing a committee which will present a scheme for financing highway developments in India, has requested detailed advice as to the forms of highway financing, sources of revenue available and methods of amortization, etc. Any assistance given this committee, it is stated, will be of considerable value to American exports, directly or indirectly.

Views of Pinellas County's Fine Roads



Six Thousand Vehicles an Hour Pass Over This Bridge

A dream of one hundred years came true when Pennsylvania and New Jersey joined hands in dedicating and formally opening to traffic the greatest suspension bridge in the world.

Since the early days of the nineteenth century the inhabitants of Southern New Jersey and of Philadelphia, urged a bridge across the historic Delaware, but a disinclination to go to the great expense always blocked the project. And it was left to a decade when construction costs were never higher to put through the plan and building the great structure.

As it stands, the bridge cost \$37,196,971. Thirteen workmen lost their lives during its construction.

It is the only public bridge over the Delaware between Philadelphia and the sea, one hundred miles distant. The span between the main piers, is 1750 feet, the longest of its kind in the world, and the length of the whole structure from Sixth and Race Streets, Philadelphia, to Sixth and Penn streets, Camden, is 9,570 feet, or one and three quarter miles. The bridge at Montreal, Canada, is fifty feet longer, but it is of the cantilever type.

The new bridge has a width of 125 feet. It is wide enough to accommodate six lines of vehicles and four lines of trolleys or high speed transit cars. It also has two footwalks for pedestrians each ten feet wide, erected above the roadway on either side of the structure. Engineers have figured that the bridge will accommodate 6,000 vehicles an hour outside the four tracks for trolley or high speed transit.

When completed, the Brooklyn bridge across the

East river was one of the wonders of the world. Its span is 1,596 feet and its cables are fifteen and three-quarter inches in diameter. The Delaware river bridge cables are 30 inches in diameter.

The two great cables from which the Delaware river bridge is suspended present a story in themselves. Each contains 18,666 wires of two-tenths of an inch in thickness. The ends are imbedded in great concrete and steel anchorages. The cables are draped in graceful curves over two immense steel towers, one on each side of the river, and each 385 feet high. The main piers upon which the colossal towers rest are composed of solid concrete faced with Georgia granite, and go down to solid rock far below the bed of the river.

Authorization for the construction of the bridge was given by the New Jersey and Pennsylvania legislatures about eight years ago, and actual construction began January, 1922. The cost of building was divided by New Jersey assuming half and the State of Pennsylvania and the City of Philadelphia the other half.

Tolls will be collected from all vehicles crossing the structure, but there will be no charge for pedestrians. A force of 45 patrolmen will police the bridge.

The bridge was constructed under the supervision of a board of engineers of which Ralph Modjeski, famed as a builder of great bridges, is chairman. The other engineers are George S. Webster, of Philadelphia, and Laurance A. Ball, of New Jersey. Mr. Modjeski is the son of the late Madame Helen Modjeski famous in her day as a tragedienne.—Michigan Roads and Pavements.

Conversation

Sandy McDonald had been to Edinburgh consulting a physician and was returning by local train to his home. As the train drew in at the first station, Sandy got up and left his car. Just before the train started he got on again, and, at the next station, got off, this time nearly missing the train.

After he had repeated this operation at several other stations, his seat mate said to him: "Pardon me, but you should not be getting on and off the train in that way, as a man of your age and build is liable to drop dead most any time, due to sudden excitement." To which Sandy replied, "That is just it. The doctor in Edinburgh has just advised me that I am liable to drop dead any minute, and I am only buying my ticket from station to station."—Kreolite News.

The New Highwayman

GLENN FRANK, President Wisconsin University

ONE of the unhappy tendencies of our time is the tendency to think that only the more showy and professionalized callings are socially important.

The poets and painters, the priests and prophets, the soldiers and statesmen, have come to be looked upon

as the guardians of the soul of civilization and the godfathers of its romance.

The more prosaic callings have come to be looked upon as bread-and-butter enterprises from which men must escape, at least for part of their time, if they are to feel the thrill of romantic enterprises or have the sense of serving creatively the spiritual needs of their civilization.

The other day I stood on a platform and looked into the faces of a thousand or more highway engineers. They were the men who have conceived and created the magnificent highway system of an important section of the United States.

It was a very modern and standardized looking group of men; their manners and their movements were very matter-of-fact. They were discussing the mixture of cement and the establishment of grades and curves. They seemed animated by no sense of the romantic in their enterprise. Clearly there were men who would have welcomed a fling in some far country of adventure as soldier or prospector or pioneer.

But as I looked at them and thought of the social and spiritual influence they had exerted upon American life by the simple process of building good roads, they seemed to me so romantic as medieval knights in plume and armor.

The greatest social services are rendered unconsciously as by-products of men's ordinary enterprises. It had been so with these highway engineers.

They had set out to build good roads and they had

(Turn to page 20).

\$165,000,000 Is Available for Federal Highways

PRESIDENT Coolidge on June 22 signed the bill authorizing the expenditure of \$165,000,000 by the national government for the construction of highways during the two years ending June 30, 1929.

By this bill, \$75,000,000 is made available each year for general highway construction and \$15,000,000 for building improved roads in the national parks.

The general expenditure will be matched dollar-for-dollar by states through which the highways will be built, thus providing for a \$300,000,000 program for the two years.

Earlier this year the president signed an appropriation bill carrying \$75,000,000 for road building during the fiscal year beginning the first of July, which also will provide for a like expenditure by the several states. The entire sum will be used to continue the construction of the Federal Aid transcontinental highway system and will help weld together a network of improved roadways covering the United States.

Through the bill it will be possible to complete at least one transcontinental highway next year and probably 20 by 1931. Roads built in the last few years under the Federal Aid system and to be built under the new bill will be linked together in transcontinental systems.

The general construction program contemplates the most gigantic road system undertaken in the history of the world. More than 200,000 miles of improved highways will result from it and upwards of \$10,000,000,000 will have been invested by the Federal government and the several states when completed.

There will be ten North-South and a like number of East-West transcontinental highways reaching from the Atlantic to the Pacific and from Canada to the Gulf. Through feeder roads already being improved in the various states, practically every isolated section of the country will be connected with the main trunk-line highways.

The authorizations are identical with the authorizations provided in the legislation enacted in the 68th Congress, except that the authorizations in the 68th Congress provided for the fiscal years 1926 and 1927. The present bill extends this same authorization to the fiscal years 1928 and 1929.

The bill had the active support in Congress of the American Association of State Highway Officials, American Automobile Association, American Bankers Association, American Farm Bureau Federation, American Federation of Labor (by resolution filed), National Grange, American Road Builders Association (by resolution filed), National Automobile Chamber of Commerce, the Chamber of Commerce of the United States.—Highway Engineer and Contractor.

Highways in Coast States Due to Protection Measures

By M. B. GILBERT, Field Secretary, Pacific Coast Defense League, 1916-18

THE intensive road program now engaging the west coast states of Washington, Oregon and California had its inception on account of and during the World War. Menaced by Japan, Mexico, and Germany, all of whom were at that time menacing this section of the Nation by mobilizing in Mexico, just over the California state line, urged the citizens of these states to adopt self protective measures against enemy invasion. In 1916, an organization, The Pacific Coast Defense League, was organized in the three coast states and received semi-official recognition from the Department of War and Peter B. Kyne, then a Captain in the Engineer Corps of the United States Army, was detailed to plan an adequate system of military highways that would allow armies equipped with modern warfare equipment, to safely and adequately handle themselves, should occasion arise, (which was greatly feared) to defend the western coast from a naval attack or landing of enemy troops.

The plan of highways as adopted by the League was a system of three trunk lines, paralleling each other, running from Canada to Mexico, the first starting at Blaine, Washington, on the Canadian line, to San Diego, California, located so as to obtain unobstructed view of the Pacific Ocean. The second defense highway started at Oraville, Wash., and terminated at Calexico on the California-Mexico line, paralleling the railways, which wound down through the valley in all three states. The third highway of defense, to start at Rossland, British Columbia, and terminate at

El Centro, California. This highway followed the base of the Sierra and Cascade ranges of mountains, in order to give a defending army the advantage of high peaks and unscalable walls, except through a few cuts that allowed passage of a small body of men. These trunk lines to be accessible to each other by a network of lateral roads, running east and west, located at points where the topography of the country would allow.

Many startling facts were disclosed in the very minute survey of conditions, that was made by this organization. It was disclosed that there was not a single mile of highway, nor a single bridge or culvert in any one of the three states that would stand up under warfare as was then being waged in France. Ten thousand miles of unprotected coast line, counting the shores of the Pacific, navigable rivers, bays, harbors and inlets, was shown to the United States War Department at this time. One county in Eastern Oregon, with four white educated white men occupying all county offices, for want of more residents in that county, presented a report that showed that in that one county alone, enough road building material was available, for the cost of handling only, to build the proposed entire military system of roads.

These and hundreds of other reasons why more and better highways should receive Federal attention in this section, were compiled and presented and petitioned to the United States Government in time of war, and now in time of peace, that activity is resulting in a highway system that ranks close to Michigan's road development.—Michigan Roads and Pavements.

Keeping Pace With the Traffic

EXPERIENCES of recent years have proved conclusively that it is not possible to anticipate conditions in regard to public improvements beyond a generation. This is particularly true in highway construction. The impetus that has been given road building had its origin in development of motor traffic, but this form of transportation is of comparatively recent development, and has not reached the peak.

Ten years ago a 16 to 18-foot roadway was considered the last word in highway requirements. Today this width of roadway is a menace to the traveling public, and present conditions require double this width in congested districts. Highways that were boulevards but five years ago are being rebuilt today to provide necessary width. We can not, therefore, build to meet future conditions of all times, because we are little better equipped now to judge of conditions 20 years hence than we were 10 or 20 years ago to foresee conditions of today.

Widening of highways, of course, means widening of narrow bridges also, and this is the problem which many states face today. Those who have bridges built

of treated timber suffer no appreciable loss therefrom, because they are long lived and the same material can be used again in the new construction. This is a distinctive advantage possessed by the treated wooden bridge alone.

The efficient public official entrusted with the expenditure of public funds should give the same attention to economical investment as does the official of a private firm, and it is safe to say private firms do not invest without considering the future development and expansion. In the interest, therefore, of the tax payer, the public official in his program for the future must not lose sight of the fact that changes are inevitable, and that the word "permanence" as applied to highway improvement is a misnomer. When a structure has outlived its usefulness any claim for permanence is unavailing unless the structure has salvage value. That creosoted timber structures are most economical, both from the standpoint of initial cost and maintenance, is an accepted fact, and they have in addition practical permanence and salvage value not possessed by structures of other material.—Wood Preserving News.



Road 8, Project 636, St. Lucie County.

HOW BUSY IS THE BEE?

It is a well-known fact, says The Compressed Air Magazine (New York), that the name "Busy Bee" is no misnomer; but not until recently has anything been done to determine just how much work the bee must do in flying from flower to flower to gather the delectable nectar. It goes on:

"A honey-bee it has been figured out by a painstaking investigator, extracts $\frac{1}{8}$ grain of nectar from a single clover blossom. To do this, it must put its proboscis into sixty different flower tubes. As it takes 7,000 grains of nectar to make one pound of honey, the bee must actually visit 56,000 clover blossoms; and with sixty tubes to a blossom, this means that the bee must take 3,360,000 drafts in collecting the sweetness necessary to produce but sixteen ounces of honey."

He Was There

She: "Remember you? Of course I do. Didn't we meet at that ghastly party at the Jenkinsons?"

He: "Quite likely. I am Jenkinson."—Exchange.

"Oh, Peter, how you have growed since you went away to college!"

"Grown, girlie, grown."

"Why, what should I groan for?"

Sentry Duty

The owner of a big plant, addressing a new employee:

"Did my foreman tell you what you will have to do?"

"Yes, sir, he told me to wake him up when I see you coming."—Forbes Magazine.

Farewell Appearance

Comedian (dictating his will)—"What money I have, chink, dough, berries, spondulix, if any, more or less such as it is, or isn't—"

Lawyer—"I can put it in more legal language."

Comedian—"I know, but I want to get a laugh."

A Rasp

"What's good for my wife's fallen arches?"

"Rubber heels."

"What shall I rub 'em with?"

We need some heavy-weight literary luminary to advise us whether Blondes Prefer Gentlemen.

—Arkansas Gazette.

Well, well; four out of five have it, and this may be what's the matter with the law's teeth.—Rockford Star.

PASSING THE BUCK

THE smaller the political unit compelled to finance a main highway, the greater injustice shown and the less likelihood of having a road improvement to meet the economic need. Yet there are those who would pass the financial responsibility on to their neighbors---the National unit to the State unit, and the State unit to the local unit.

It is absolutely unfair for the larger political unit to attempt to make a showing of small expenditures by passing on to the lesser unit its own share of the financial responsibility.

Such reductions of Federal expenditures would mean no real saving to the people. Road improvements must go on. Unimproved roads mean added transportation costs. Business, through transportation, has eliminated State lines and made the highways a National function.

There are two sides to every road---the creditor and the debtor. This Nation cannot ride on one side without returning on the other. Drive to the right.

---American Highways.



Group photograph of the record-breaking crowd which attended the opening of bids July 21st, 1926, for construction of the greatest number of projects ever advertised for a single letting—15 projects in 12 counties.

Be a Paderewski to Your Car

FEEL it out" as if it were a musical instrument and you a virtuoso. Cultivate your sense of touch with it. One might almost say, "Enter into its feelings," for such is the spirit of an expert's advice as to a man's relations with his car. For a car possesses, he tells us, many of the characteristics of a musical instrument. There may be discordant notes of which the driver is aware, says this witness, Frederick C. Russell, but "perhaps he has not stooped to consider that other people get better performance because they put more 'feeling' into the playing of their cars." Dilating on this subject in the New York Times, Mr. Russell continues:

Standing on a street-corner recently, a motorist who was interested in this idea watched a high-priced car glide up to a halt at the white lines. "There," he thought, "is a car that anyone can drive easily. Everything works like a clock. There would be no rasping of gears, no squeaks and groans, if all cars were like that." He was somewhat surprised to hear a loud click from one of the rear axle keys when the car started again.

The driver simply had struck a sour note, and the car, entirely at the driver's command, was powerless to respond with anything approximating harmony.

The driver did not take his foot off the clutch pedal

suddenly, but in the way he balanced the engine's power against the car's inertia a strain was produced occasioning the telltale click.

Apparently good driving is more than a matter of skill. Somewhere along the line the good driver adds the equivalent of "touch" in the playing of musical instruments. He does things not merely well but with a keen sense of values. He seems to be interested in the machinery of the car to a point where he can obtain something over and above the usual results.

The similarity between good playing of a musical instrument and good "playing" of an automobile is striking. The musician with a "touch" seems to be the one who can tell beforehand how his playing is going to sound to those who listen. The driver with a "touch" seems to be able to tell in advance just how the performance of his car is going to impress those who ride with him or who observe him. The former obtains results by knowing just how much pressure to exert upon the piano keys, the violin strings, or whatever the instrument may be. The latter knows just how quickly to let in the clutch, when to move the gear shift lever and how far down to press the accelerator.

The car makers have made the process of driving so simple that if one follows a few definite directions

the car will go on its way after a fashion, and it is not likely to fall apart sooner than the average. But only the driver who has developed the sense of "touch" in his manipulation of the controls obtains genuine results. He is the man you like to ride with. His car is the one you speak of as being an exceptionally good one.

Even the starting of the engine illustrates the value of "touch." Nine out of ten drivers think that operating the ignition switch is simply a matter of turning it on or off. They figure that it makes little difference how or when the ignition is turned on just so long as it is turned on while one is trying to crank. To them the switch is like a piano key which the small boy strikes with his finger. The switch turns on the ignition current; the key lets loose a sound. Neither realizes that many variations can be made.

You can set fire to the automobile with the ignition switch. For instance, if the switch is turned on directly after being turned off, and before the engine comes to a dead stop, a backfire is likely to occur.

Turning on the ignition switch too soon will usually retard the cranking process if the engine is cold. For a snappy start it is necessary to have good compression, assuming that everything else is in order. Some of the old cars started quicker than some of the new ones because with the hand-crank the skilled driver could raise compression by a quick spin of the

engine shaft. The more electric current you can send through the wire to the starter-motor the faster that unit will run and the faster it will turn over the engine. Therefore, when you switch on the ignition before stepping on the starter-motor, you divert some of the current that should be going to give the engine-shaft a quick spin.

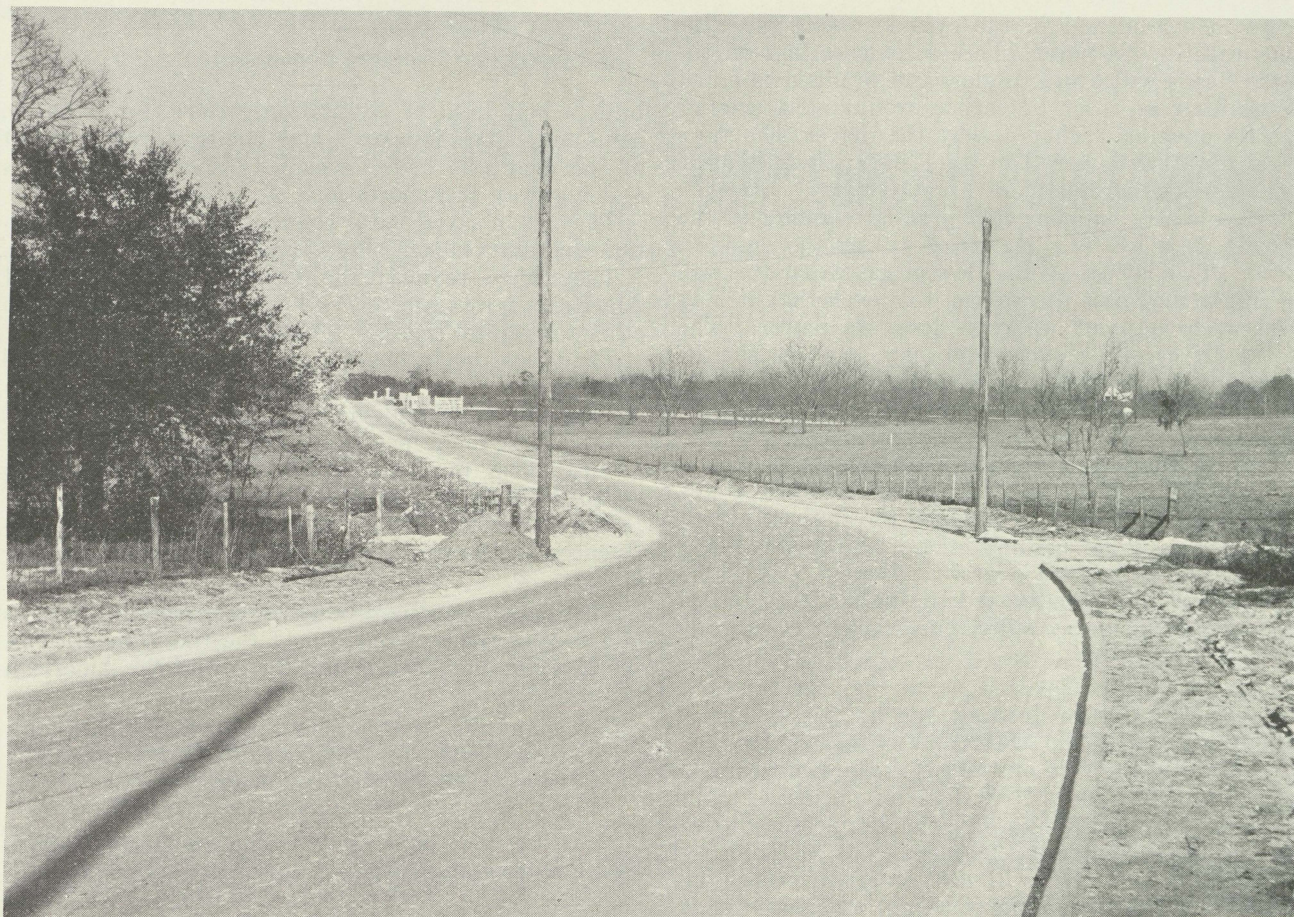
The driver who puts some "feeling" into his handling of the engine and car gives the engine a few spins, builds up compression in the cylinders, loads up with gasoline spray and then switches on the ignition. For, we are told:

Backfire is less likely with this method because the engine shaft is turning over rapidly in the direction it goes normally. Any misfiring that would tend to reverse the direction of travel would have to be of sufficient force to overcome the spinning of the fly-wheel, and early burning of the gasoline spray and vapor in a cold engine is of comparatively low intensity.

Consider the mere handling of the ignition switch when descending hills. The custom of switching off the ignition when going downhill is rapidly going out of style; first, because four-wheel brakes are rendering it unnecessary to use the engine so frequently for braking purposes; second, because the difference between the braking effort of an engine with the throttle closed and one with ignition off is so slight that many drivers have found it just as well to close the throttle



State Road No. 15—Near St. Petersburg. Constructed by Pinellas County.



Lime rock base on the road to Silver Springs. Constructed by Marion County in its comprehensive programme.

and not bother with the ignition; and third, because of the danger of backfire when switching on the ignition again.

The ignition switch seems to be so simple that one is inclined to forget that it is capable of a wide variety of control. In descending a hill with the ignition off and throttle closed the car is pushing the engine to a point where the normal action of the engine is decidedly upset. Usually the engine has had to climb a hill in order to descend one, which means that it is probably overheated. Should an exhaust valve be stuck partly open when the ignition is suddenly switched on at the bottom of the hill a backfire through the exhaust is very apt to blow off the muffler. This is particularly true if the driver has been keeping the throttle open with the idea of making the engine a more effective braking force by increasing the compression.

A driver who knows what sort of results he can get out of each control on the car sees that the throttle is closed before switching on the ignition, and even waits a few seconds to be sure that the cylinders have been cleared of the excess of gas. He may even slip out the clutch an instant so that the engine will not be turning over so fast when the ignition is switched on.

And here are other points of interest for the amateur driver who aspires to become as intimate with his car as Kreisler is with his violin:

When you consider the variety of results that can be obtained with so simple a thing as an ignition

switch it goes without saying that the clutch, the brakes, the ignition advance control, the throttle and the gears can be handled with an even wider variation in results. The trick, however, is to know how to get these results.

An accelerator, for instance, reminds one of the loud pedal on a piano. To some players the pedal merely helps to control the volume, while to true musicians it is a means of obtaining brilliant effects of one sort or another. It helps them accent particular notes or phrases. It enables them to give their playing a pleasing variation in interpretation. So far as mere loudness is concerned, they find it of very minor importance.

To a great majority of automobile drivers, however, the accelerator is just a loud pedal. The more you step on it the more noise you make and the faster you go. That is the unfortunate idea. Day in and day out it stands in the way of good driving and steers good cars to the junk-heap.

How many drivers know that it is often possible to make a car climb a steep hill in high gear more effectively without fully opening the throttle? How many know that a steady forcing of the accelerator down to the floor is not always advisable? How many appreciate that the engine is responsive to the accelerator in varying degrees, according to the opening of the throttle? How many realize that you can give gas to an engine too early as well as too late?

Frequently with a wide-open throttle the quantity

of gas being burned in the cylinders will raise the temperature to a point where a little carbon on the piston heads will begin to glow and produce as much pre-ignition as a lot of carbon would at a smaller throttle opening. That is why the driver who tries to get up a hill faster than usual often finds himself making less progress.

It frequently happens that gradual opening of the throttle on a hill is a means of killing the engine's power. This is because the flow of gas vapor through the intake and past the valves is so even that it may overheat to a point where it loses its power. The skilful driver under such conditions steps on the accelerator in jerks, allowing large quantities of cooler air to suck through the carburetor and into the engine. This makes for a cooler gas vapor and snappier operation of the engine. Of course he does not overdo it any more than the piano player holds down a key longer than necessary to produce the desired effect.

The range of the accelerator and of the throttle is not progressive in even degrees. That is, a little acceleration when the engine is running moderately fast may produce greater results than when it is running slowly or very fast.

When the driver has discovered that the time element also figures in feeding gas he has begun to make progress in the skilful handling of the car. When he learns to step on the gas at the right time he is quick to note that when accelerating on level ground or hills it is important to give the engine time to respond to the increases in the quantity of gas admitted to the cylinders. He will sense the difference between crowding the engine with gas and starving it.

—Literary Digest.

KEEPING A HIGHWAY ORGANIZATION

(Continued from page 3.)

equipped to take up higher work. The fact that they see something more or less permanent ahead will increase their zeal in their work.

These younger men are helped a great deal in their attitude toward the organization by their contact with the district engineer and his assistants. In the first place, they gain by the older engineer's experiences and in the second place, they feel that a superior is close enough to observe and reward good work.

This state organization plan, with slight modifications to fit local conditions, is adaptable to any state, and, in general, the district organization will fit a county's needs. Experience has shown that the states and counties which now have this form of organization have a much smaller turnover of engineers than those not having it. It is, therefore, urged that the plan be adopted in some form by all civic divisions, with a view of keeping the good engineers and building an organization from within.

Courtesy

A haughty lady had just purchased a postage stamp at a sub-station.

"Must I stick it on, myself?" she asked.

"Positively not, madam," replied the clerk. "It will accomplish more if you stick it on the letter."

THE NEW HIGHWAYMAN

(Continued from page 12.)

built a new kind of civilization. Here, for instance, are some of the things we may chalk up to the credit of the men who have developed American highways and highway transportation:

They have saved rural communities from the isolation that starves men's souls and shrivels their spirits.

They have reduced the narrow provincialism of American towns and cities by linking them up with other towns and cities.

They have made possible the development of rural mail service.

They have rendered the parcel post service possible.

They have made possible a reduction in the cost of getting farm products to and finished goods from railroad shipping points.

They have made the educational and cultural influences of America available to wider and wider areas.

They have, as a by-product of the prosaic business of building roads, transformed the living conditions, the thought, the culture, and the life of the American people.

The man who sees the spiritual by-products of his business or profession doubles the joy of living.
(Copyright, 1926 by McClure Newspaper Syndicate.)

It is better to be careful a thousand times than to be killed once.

FOR—

Road Construction

Low-Cost Maintenance

McCORMICK-DEERING

TRACTORS

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DEPENDABLE

POWER UNITS

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CAMP CONCRETE ROCK COMPANY

Jacksonville Ocala Tampa

Producers of High Grade Washed, Crushed and Sized

CONCRETE ROCK

"Camp Quality"

Capacity 1,500 to 2,000 tons daily. Quarry, Camp, Florida, Hernando County, on the Atlantic Coast Line Railroad. Our product has been approved for all structural concrete and bituminous macadam.

C. W. STONE, Sales Manager

Sales Offices: 1011 Bisbee Bldg., Jacksonville, Fla.
Room 212, Allied Bldg., 112 Cass St., Tampa, Fla.

THE SUPREME COURT DECISION

(Continued from page 4.)

be encountered for lack of a Judge to try the cases, as he will, on application, designate a Judge for that purpose in cases where the resident Judge is prevented from arranging a speedy trial. A delay of at least thirty days, however, in cases where condemnation becomes necessary appears unavoidable.

Fortunately, the number of property owners who obstruct the State's programme of road construction grows rapidly smaller. The people of the State are realizing, more and more, that although the benefits which accrue from the construction of a State highway cannot be taken into consideration in arriving at a just compensation in condemnation proceeding for the lands sought, those benefits are none the less real, and very, very few are those who would decline to donate the necessary right of way if they believed there was a possibility of locating the road somewhere else. Fine, well-constructed highways make the value of property adjacent, and property owners are fast realizing that the donation of a right of way is not, after all, wholly a contribution to the State but results invariably in enhancement of the value of the remaining lands many times above the intrinsic value of the lands donated.

Taxi Driver—"Here you are, sir. This is your house—get out—be careful, sir—here's the step."
Stew—"Yesh! Thash allri, but wersh my feet?"

MAKE OUR ROADS SAFE

(Continued from page 5.)

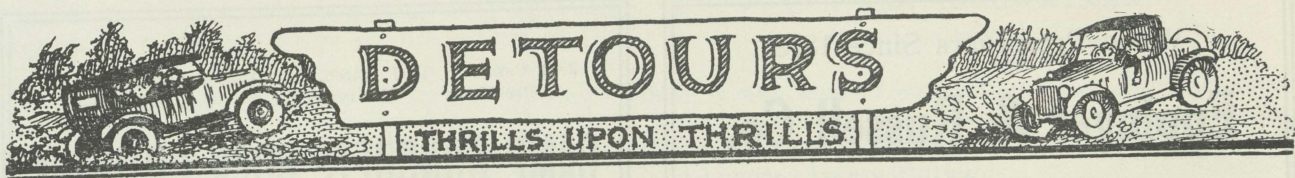
form traffic laws and the regulation of speed on our highways. At present there is no regulation of speed in many of the counties while in some it would appear that there is entirely too much. The State will eventually find it advisable to regulate traffic on our principal highways through the proper legislation. It has been estimated that the annual toll of life on our highways and transportation lines last year was thirty thousand, a startling number!

The State of Florida is expending millions of dollars annually for good roads and it is believed that within a few years she can boast of as fine a system as any State in the Union; but what will these fine roads profit us if they are laid out and constructed without regard to life and limb, if reckless and careless drivers are permitted to make these wonderful roads thoroughfares of death?

The slogan in Florida, yea, in America, should be: "MAKE OUR HIGHWAYS SAFE FOR TRAFFIC."

"Now that you've seen my son and heir," said the proud young father, "which side of the house do you think he resembles?"

"Well," said his astonished bachelor friend, "his full beauty isn't developed yet, but surely you don't suggest that he—er—looks like the side of a house, do you?"—Exchange.



Cracklings

The hours I spend with thee, dear heart,
Are fraught with joy and bliss, although
At times I'd like to kick apart
My Radio, my Radio.
Each word a shriek, each song a blare,
But still I tune and tune in vain—
I listen in unto the end, and there
You screech again.
"B" batteries and ampliphone,
O tuning coil that makes me cross,
I wish that I could cure your static groans;
But you're a loss, sweetheart, a total loss.—Paul J.
Artale, in "The Chase."

Dumbest Yet

Hostess' daughter (trying desperately to keep the conversation going)—"Did you ever hear the joke about the curio dealer who had two skulls of Columbus—one when he was a boy and the other when he was a man?"

Wiggins—"No; I don't think I have. What is it?"

To Repel Invaders

The following sign is displayed above the ice-cream counter of a prominent drug store:

"Take a brick home; it's fine when company comes."—Union Pacific Magazine.

Pickles Here and There

At a recent luncheon, twenty-six varieties of Australian wine were served. Americans must take consolation from the fact that they can go thirty-one better than this with pickles.—London Opinion.

Henry: "Did you build a garage for your flivver?"

Ford: "Yes, I had to. Caught a couple of ants trying to drag it through a crack under the sidewalk."

—Taos Valley News.

A contractor called up an architect and said:
"Hold my bid, I forgot to figure in the steel and brickwork."

Architect: "That's all right, you're the high bidder anyway."—Exchange.

Staying up all night may make you as wise as an owl, but owls have no sense during the day.

Teacher—"Use the right verb in this sentence—'The toast was drank in silence'."

Pupil—"The toast was ate in silence."—Exchange.

The Complex

A coast and geodetic survey engineer was making observations in Texas for compass declination. He was at his instruments, and taking copious notes, when a rangy Texan walked up, examined the outfit, and inquired:

"Whattyer doin', young felly?"

The engineer, new and enthusiastic in the coast and geodetic survey service, replied in detail:

"I am determining the latitude, longitude and declination of the compass and establishing a permanent survey monument for the benefit of local surveyors. The compass pointing goes through a small change in a period of years and I am determining a small change in a period determining the exact pointing at this date. I am observing on the sun, and by astronomy I am able to establish a true North and South line. Then I determine the magnetic pointing of the compass, and the angle between the two gives me what I'm looking for—the declination of the compass."

But the native wasn't convinced. He spat at the instruments, gave his big hat a vicious tug, and announced:

"Ye can't fool, me, young felly; ye're looking for oil."—Life.

Sure

A certain newspaper that made a practice of answering inquiries from readers received this one:

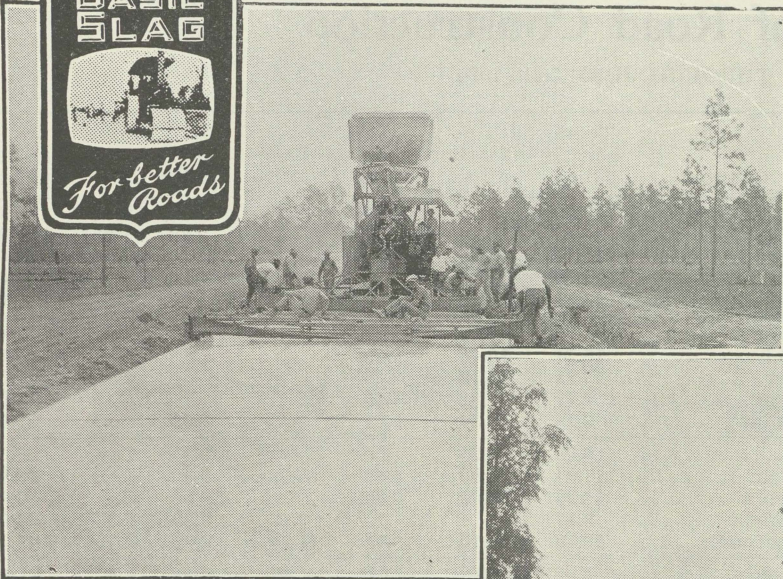
"Please tell me what is the matter with my chickens. They go to roost apparently well. The next morning we find one or more on their backs on the floor, stiff, combs white and the feet in the air."

It was the editor's busy day, and this was the answer his reader received:

"Dear sir, your chickens are dead."

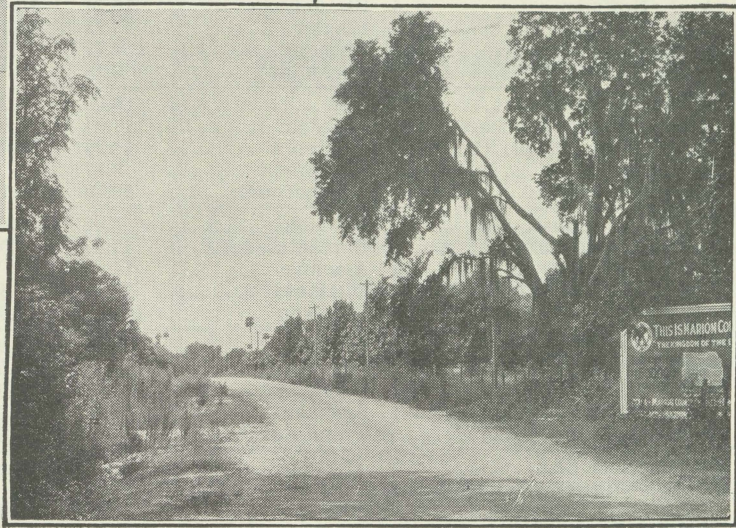
TRY THIS AND HAVE GAS TO SELL

A story is going the rounds to the effect that a certain automobile owner installed a new-fangled carburetor that was guaranteed to save 20 per cent in gas. Then he put in special spark plugs that were guaranteed to save 20 per cent of the same precious fluid, and an intake super-heater that was guaranteed to save 20 per cent. He next put in a patented rear-axle that was also guaranteed to save 20 per cent, and retired with a new brand of tires that promised a 20 per cent saving in gas consumption. Finally, he drained his crank case and refilled it with a new oil guaranteed to increase his mileage 20 per cent. Now, with a fuel economy of 120 per cent, the owner has to stop every hundred miles and bail out the gas tank to keep it from running over!—Exchange.



S-24 (Mobile County, Ala.)—4 miles of Slag Concrete paving from Grand Bay to the Mississippi line near Pascagoula; the standard 1 : 2 : 3 mix produced concrete averaging better than 3,800 lbs. per sq. inch; laid in 1924 by Joseph Fromherz, Inc., of New Orleans, who is now laying F. A. P. 146-C, an extension of 11.67 miles towards Mobile.

County Road No. 5 on short route Jacksonville-Tampa highway (Marion County, Fla.)—18 miles of double surface treatment "Ensley Basic Slag" wearing surface on 8-inch compacted Ocala Lime Rock base.



More than
1,000 miles of hard surface
highways have been laid with

"ENSLEY" & "ALA CITY"
BASIC SLAG
CRUSHED & SCREENED

The dominance of pure Basic Slag as a road metal is evidenced by its use in a total of more than 1,000 miles of hard-surface, all-weather highways.

The results obtained in various types of paving have attracted national attention.

Marion County (Fla.), for instance, has established a new record for low cost in all-weather highways. At an average cost of

only \$12,000 per mile she has laid 99 miles of double-surface treatment paving — "Ensley Basic Slag" wearing surface on an 8-inch Ocala Lime Rock base.

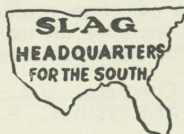
The use of Basic Slag in Concrete has set a new standard for—strength. Slag Concrete testing 4,000 lbs. per sq. inch, and better, is not unusual. Result? Today more than a million and a half sq. yds. of Slag Concrete serves the South.

BIRMINGHAM SLAG CO.

Atlanta
Thomasville

• BIRMINGHAM •

Montgomery
Ocala, Fla.



Status of Road Construction

THROUGH JUNE 30th, 1926

Project No.	Contractor	Road No.	County	Total Length Miles	Clearing Miles	Grading Miles	Base Miles	Surface Miles	Type	Per Cent Complete
19	Duval Engr. & Contr. Co.	2	Hamilton	8.20			8.20	6.64	S.T.	98.30
31	Duval Engr. & Contr. Co.	2	Hamilton	11.82			4.07	0.00	S.T.	37.00
40-A	C. F. Lytle	4	Brevard	16.17	16.17	16.17	16.17	13.74	S.T.	97.00
41	Morgan-Hill Paving Co.	4	Dade	12.00	10.78	7.29	1.50	0.00	S.A.	28.00
46	B. Booth & Co.	3	Nassau	11.52	11.52	11.52			G.	100.00
47	Boone & Wester	4	St. Johns	14.96	13.47	12.27			G.	85.00
48	A. J. Hoffman	4	St. Johns	15.94	15.46	9.88			G.	67.00
49	A. J. Hoffman	4	Flagler	13.81	11.18	2.48			G.	29.50
50-B	B. Booth & Co.	14	Putnam	9.77	7.82	4.40			G.	57.00
51	Noonan-Lawrence	7	Escambia	6.28	5.34	4.71		3.58	Conc.	59.00
500-A	Noonan-Lawrence	20	Bay	9.65	1.25	1.00		0.00	Conc.	5.00
514	State Convict Forces	1	Jackson	11.04	3.00	1.60	0.00	0.00	S.C.	18.00
543	Lake Worth Const. Co.	3	Seminole	14.20	0.00	0.00			G.	0.00
562-A	H. E. Wolfe	8	Highlands	5.37			3.43	0.00	S.T.	64.00
581	Barnes & Smith	5	Hillsborough	12.10	12.10	12.10	11.74	6.00	S.T.	97.00
613	Broadbent Const. Co.	5	Sarasota	4.62	4.62	4.62	4.62	0.00	S.A.	64.00
614	State Convict Forces	5	Sarasota	17.07	4.50	2.00			G.	13.00
617 and 618	L. M. Gray	5	Alachua	16.06			2.91	0.00	S.T.	18.10
621	Penton-Mathis Const. Co.	1	Okaloosa	17.35	12.32	8.67			G.	48.30
623	State Convict Forces	35	Madison	12.91	11.62	11.62		0.00	S.C.	65.00
627	L. M. Gray	2	Putnam	6.27	6.27	6.27	5.26	0.00	S.T.	96.00
631	E. P. Toulmin	1	Washington	8.53	8.52	4.70			G.	50.00
633	Taylor Contr. Co.	1	Gadsden	9.61	9.61	9.61		9.61	S.C.	100.00
634	State Convict Forces	1	Jackson	11.07	11.07	10.18		10.18	S.C.	86.60
641-A	Chas. F. Wilmore	4	Palm Beach	11.36	8.01	3.34			G.	24.00
642	B. Booth & Co.	3	Putnam	10.82	10.82	10.82			G.	100.00
642	F. S. Whitney	3	Putnam	10.82			2.95	0.00	S.T.	26.10
644-A	Gillis Const. Co.	10	Wakulla	8.49	5.09	5.09			G.	60.00
648-A	Federal Contr. Co.	2	Hardee	14.17	11.33	9.21			G.	67.00
648-A	Wm. P. McDonald Const. Co.	2	Hardee	1.00	0.00	0.00	0.00	0.00	S.T.	0.00
649	Penton-Mathis Const. Co.	33	Okaloosa	10.42	10.42	10.42		10.42	S.C.	100.00
651	State Convict Forces	10	Gulf	14.72	11.03	8.82		.44	S.C.	27.80
652	Penton-Mathis Const. Co.	33	Okaloosa	9.04	9.04	9.04		5.00	S.C.	92.00
655	H. E. Wolfe	18	Highlands	13.26	13.26	11.93	7.69	0.00	S.T.	92.00
657	State Convict Forces	6	Jackson	10.00	8.00	7.50		6.00	S.C.	60.00
658	Myers Const. Co.	1	Holmes	8.21	8.21	7.50			G.	85.00
660	B. Booth & Co.	3	Clay	10.52	10.00	6.84			G.	61.00
661	Sou. Paving Const. Co.	2	Lake	3.52	3.17	3.17	3.41	2.82	S.A.	90.50
663	Taylor Contr. Co.	5	Citrus	8.03	7.87	7.23			G.	90.50
666	State Convict Forces	6	Jackson	6.52	6.52	6.52		6.00	S.C.	95.00
669-B	M. C. Winterburn, Inc.	27	Dade	10.32	10.32	10.25	0.00	0.00	S.T.	75.00
670	State Convict Forces	6	Jackson	12.30	12.30	10.00		9.00	S.C.	75.00
672	State Convict Forces	1	Leon	9.92	9.92	7.25		4.96	S.C.	80.00
673	State Convict Forces	1	Gadsden	9.90	7.00	6.00		0.00	S.C.	55.00
675	Wm. P. McDonald Const. Co.	17	Polk	5.16	4.90	2.58	0.00	0.00	S.A.	9.00
676-A	Gilbert & Hadsock	19	Levy	9.95	2.98	.50			G.	11.50
676-B	McLeod Const. Co.	19	Levy	14.39	3.59	2.16			G.	13.00
679	Taylor Contr. Co.	5	Hernando	7.12	7.12	6.41			G.	8.39
682	Caye-Andrews Co., Inc.	5	Citrus	6.45	5.94	4.72			G.	86.00
689	J. W. Hall	5-A	Alachua	1.67	1.67	1.67			G.	100.00
693	Boone & Wester	4	St. Lucie	8.73	6.11	1.74			G.	10.70
694	C. A. Steed & Sons	4	Martin	8.48	4.20	.42			G.	3.90
Total Complete June 30th, 1926					1533.11	1477.14	622.92	1192.03		
Complete month of June, 1926					38.83	33.29	16.98	26.00		
Total Complete May 31st, 1926					1494.28	1443.85	605.94	1166.03		

TOTAL MILEAGE COMPLETE

	Concrete	Brick	B.C.	S.A.	B.M.	Asp. Blk.	S.T.	S.C.	Marl	Total
Complete to May 31st, 1926	109.56	17.15	10.74	60.58	89.07	23.20	440.41	448.14	45.86	1244.71
Complete month of June	1.64			2.58			15.70	5.14		25.06
Total to Date	111.20	17.15	10.74	63.16	89.07	23.20	456.11	453.28	45.86	1269.77

Note—The above tabulation shows only those projects that are actually under construction at the present time and does not show projects that have been previously completed. However, the table, "Total miles completed," at the foot includes all projects that have been completed prior to June 30, 1926, and the amounts completed in June also. The abbreviations are as follows:

C.—Concrete. S.A.—Sheet asphalt. B.M.—Bituminous macadam. R.—Rock base. S.C.—Sand clay. G. & D.—Graded and drained. S.T.—Surface treated. B.C.—Bituminous concrete.



That the President Might Ride In Comfort

They called on this Austin Pup to repair the road leading to the "Summer White House" at White Pine Camp, where President and Mrs. Coolidge are spending the summer months.

At first the road was found to be too rough to permit rapid travel and consequently it became necessary to level it off as quickly and smoothly as possible. An Austin Pup Roller was chosen as the ideal machine for the job and within a short time had prepared a smooth, hard road surface that made the ride through these beautiful mountains a real pleasure.

Many road contractors and highway engineers have called the Austin Pup the handiest piece of machinery they operate.

A special catalog tells all about this 3½ to 5-ton roller and road maintainer combined.

Write for yours today.

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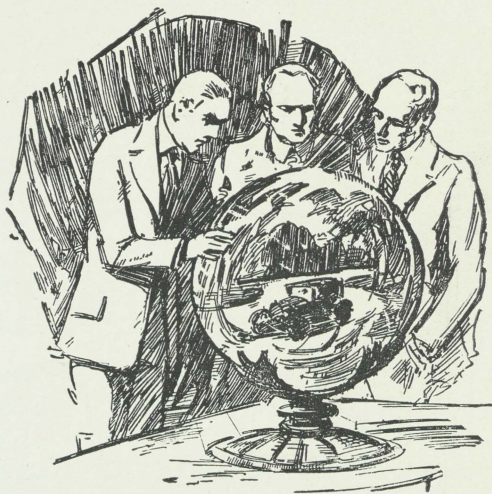
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Made in the United States
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Intelligent, dependable service
by expert bridgemen.

Dudley Bar Company

BIRMINGHAM, ALA.



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THOUGHTFUL taxpayers look deeper into their obligations of the future than the present enthusiasm of a quick-selling bond issue.

They want a road as good as its bond!

"Will the road be long-lasting?" they ask.

With a Lime Rock base—yes. With proper drainage—yes. With good surfacing—yes. For these three points of permanence mean long life to a road and the greatest economy to the property owner who helps pay the bill. And the man who pays the bill should be deeply interested in getting the best for his money, in knowing that his taxes insure material that can be laid down on the job at a low transportation cost; that labor cost can be saved in construction, by means of materials easy to handle; that the materials represent durability and high resistance to the depreciation caused by traffic.

When scientific laboratories say that Lime Rock will stand the gaff of modern traffic, when the Government approves Lime Rock for Federal roads, the answer is ready-made when the question arises, "What base shall we use for our road?"

Lime Rock Is the Life of the Highway

A FLORIDA PRODUCT

A substantial Lime Rock base cuts construction costs and is its own insurance for a long future!

FLORIDA
LIME ROCK
ASSOCIATION

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